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TRANSACTIONS

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DESCRIPTIONS OF AMERICAN LEPIDOPTERA.—NO. 1.

BY AUG. R. GROTE AND COLEMAN T. ROBINSON.

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Family, HESPERIIDAE.

HESPERIA, Fabr.

Hesperia punctella, n. sp.

Male.—Head, thorax and abdomen, above, olivaceous blackish; beneath, the palpi are clothed with mixed whitish and fuscous hair, the eyes are narrowly bordered inferiorly by pale scales, the thorax is clothed with dull olivaceous hair, and the abdomen is touched here and there with pale scales. Antennæ, slender and moderately long; above, the stem, before the "club," is fuscous and obsoletely annulate with a paler shade, which latter becomes more prominent before the apical distension; beneath, more plainly annulate with yellowish-white, which latter shade becomes continuous over the base of the "club;" this latter is elongate, black above, and below, and terminates in the usual short hooklet, carried at right angles with the antennal stem. Legs, fuscous, paler inwardly; posterior femora with two pairs of short, unequal, and slender spurs, which are of a very pale color, and of which the terminal pairs are the most prominent.

Wings, above, glossy olivaceous blackish, with a variable coppery reflection; anterior pair, elongate, sub-triangular, straight along costal margin, produced at apices; an oblique, dull black, stigmal dash, extending from base of 2nd median nervule, inwardly, to above internal nervure; a white dot above this, situate near the base of the interspace between 1st and 2nd median nervules; a white dot within this, placed sub-costally above and near the outer extremity of the discal cell. A cluster of three similar very approximate white dots, one under the other, the lower the largest, slightly curved and placed interspaceally sub-apically between the sub-costal nervules, and forming, with regard

to the two other dots the apex of an oblique triangle, which might be drawn so as to include all these maculations; apically, the wings are dull blackish; fringes, pale, stained with darker shades below the apex and interruptedly so at the middle; posterior wings, resembling primaries in coloration, immaculate, slightly produced at anal angle; fringes, pale, immaculate.

Under surface of wings, dull olivaceous blackish, with lilac and brown shades. Anterior pair bright brown along costa and more diffusely so towards the apex; the white dots of the upper surface are here reproduced, surmounted by three short, oblique, costal pale marks, but they are larger, more nearly one sized and sub-quadrate; a lilac shade, deepening inwardly inferiorly to purplish, spreads terminally from apex to about 2nd median nervule; fringes as on upper surface, but more prominently interrupted with darker scales at the extremity of the nervules. Secondaries, dull obscure brownish, somewhat olivaceous along internal margin, and obsoletely shaded with light purple at the middle; a faint, extra mesial, arcuate band of disconnected interspaceal, pale discolorous blotches, which are discontinued within internal margin, and most prominent at the bases of the median nervule; a terminal lilac shade much as on anterior wings; a terminate narrow dark line; fringes, pale, obsoletely interrupted with dark scales at the extremities of the nervules.

Expanse, 1.50 inch. *Length of body*, 0.70 inch.

Habitat.—Atlantic District. (Georgia!)

This species bears a slight resemblance to Eudamus bathyllus, *Bdv.* and *Lec.*, in coloration. It is structurally distinct in the shorter antennæ, wanting the prominent reflection of Eudamus, narrower primaries, and by having the abdomen as long as the internal margin of the secondaries. We have examined two male specimens, taken by Mr. James Ridings, in Georgia, during the early summer of 1866.

Hesperia fusca, n. sp.

Male.—Head, thorax and abdomen, above, olivaceous blackish; the prothoracic scales are shaded with golden brown, which latter shade extends narrowly above the eyes and linearily across the front and strongly tinges the terminal palpal hairs. Beneath, the palpal scales are yellowish-white, which latter color extends narrowly below the eyes; the thoracic scales are pale yellowish olivaceous; the abdomen is shaded with obscure whitish. Antennæ, moderate, slender; the antennal stem, above, is fuscous, beneath, annulated with yellowish-white, which latter shade extends over the "club" at base, the latter mode-

rate, elongate, above entirely black, but beneath only terminally so; the terminal hooklet is short, and carried at right angles with the antennal stem. Legs, obscure olivaceous, paler within, hind femora with two pair of very slight, sub-equal spurs.

Wings, above, glossy olivaceous blackish, immaculate; anterior pair slightly produced at apices, moderately straight along external margin; the costal region is somewhat elevated, and, superiorly, the wing is a little wrinkled; there is a faint and variable yellowish-brown reflection equally distributed; fringes, pale, immaculate; posterior wings, rounded along external margin, straight along internal margin, so that the anal angle, without projecting, is yet acute; the coloration as on primaries; fringes, pale, immaculate.

Under surface of wings, shaded with lustrous golden brown scales. Anterior pair, dull olivaceous blackish, shaded with somewhat pale golden brown scales superiorly and terminally; fringes as on upper surface. Posterior wings, evenly covered with pale golden brown scales, except for an inwardly, straightly defined, longitudinal space before internal margin, which is dull olivaceous blackish; fringes as on upper surface.

Female.—Resembles the male; the wings are less produced at the apices and angles; the yellowish shades among the palpal and caputal scales in the male, are paler and whitish, as is also the inferior thoracic and abdominal squamation.

Expanse, ♂ and ♀, 1.05 inch. *Length of body*, ♂, 0.55, ♀, 0.50 inch.

Habitat.—Atlantic District. (Georgia! Ridings; Florida! Linden.)

We have examined one female and three male specimens of this small species, which may be recognized by its immaculate wings and dull obscure coloration, hardly relieved by the golden brown scales of the under surface.

Hesperia alternata, n. sp.

Female.—Head, thorax and abdomen, above, olivaceous blackish; laterally, the thoracic parts are furnished with long olivaceous hair, which covers the abdomen at base. Beneath, the palpi are clothed with whitish and mixed dark scales, and the eyes are bordered inferiorly with pale scales; the thoracic parts are somewhat loosely clothed with cinereous or slate-ashen hair, which becomes somewhat whitish between the anterior femora; abdomen, sprinkled with grey scales, which form incomplete segmentary bands, narrowly fringing the inferior edges of the abdominal segments laterally, and continued obso-

letely superiorly. Legs, finely scaled, blackish, slightly touched with grey scales; hind tibiæ fringed with long and sparse ashen hairs, and provided with two pairs of short, slight, sub-equal spurs. Antennæ, moderate, black, annulate with white, more prominently so beneath, where the base of the "club" is also white, whereas above, this is entirely black.

Wings, blackish-brown, lustrous; anterior pair, trigonate, produced at apices, external margin slightly oblique, hardly rounded, slightly projected at internal angle; posterior pair, rounded along external margin and having internal margin a little shorter than abdomen. Above, the anterior wings are lustrous blackish-brown, faintly shaded with olivaceous at base and along internal margin, immaculate, except a very faint series of disconnected pale marks, three in number, situate sub-terminally and obsoletely, constituting the usual band; these marks are composed of a few powdery pale scales and readily escape observation; the first and longest is situate sub-costally across the apical nervules; the remaining two are situate near the base of the interspaces between the upper median nervules, the upper most the smallest and nearer the external margin. In shape all these marks are linear; that below costa a little arcuate; fringes, white, prominent, narrowly interrupted with blackish at the extremity of the nervules. Posterior wings, blackish-brown, immaculate, with long olivaceous brown hair along internal margin, and spreading sparsely over the base; fringes, white, prominent, obsoletely interrupted with blackish at the extremity of the nervules. Beneath: anterior wings colored as on upper surface, but a little paler, with a slight purple shade, and having the sub-terminal pale marks very slightly more prominent; fringes as on upper surface; the posterior wings are blackish-brown, lustreless, and the whole surface is very distinctly irrorate, or powdered with cinereous or slaty-ashen scales, except for a rather wide longitudinal space before internal margin, extending from base to external margin, towards which it widens, where the ground color of the wing prevails, entirely free from pale scales, which again are sprinkled beyond it along internal margin; these irrorations are gathered centrally so as to form a linear median sinuate band, continued from costal margin to the space before internal margin, which is free from irrorations; fringes as on upper surface.

Expanse, 0.95 inch. *Length of body*, 0.50 inch.

Habitat—Atlantic District. (Georgia!)

Resembles Hesperia samoset, *Scudder*, (*Hesp. nemoris*, Edwards,) but differs by the obsolescence of the pale marks on anterior wings and the coloration of the posterior wings beneath.

Family BOMBYCIDAE.

Sub-family CERATOCAMPIDAE.

Tribe DRYOCAMPINI.

PSEPHOPAECTES, n. g.

♀. Head, depressed, impacted on the prothoracic parts, which are greatly advanced and projected above it. Eyes, very large and globose. Clypeus, broad, triangulate. Antennæ, slender, shorter than the thorax, bi-pectinate at base for a third of their length, thence simple to tips. Oral structure obsolete. Thorax, globose and elevated, half as long as the abdomen, thus proportionately more elongated than in Adelocephala. Abdomen, extending as far as internal margin of secondaries. Wings, rather narrow and elongated.

Primaries, with the costa very straight, and but slightly depressed before the acuminate apices. External margin scolloped, moderately oblique. A shallow excavation below the tips, the margin rising to disco-central interspace where it is produced, but is again and more deeply excavate between first and third median nervule. At the extremity of this latter nervule, the wing is again produced, thence receding to internal angle, this latter rounded and improminent. The nervules are straight or slightly arched. The discal cell is narrow; the 3rd sub-costal thrown off from the nervure itself and not from the discal cross-vein as in Adelocephala and Anisota, (*Dryocampa*, Harris). The median nervure is straight, and its division into first and second median nervules takes place at a point before the extremity of the discal cell, the second, proceeding straightly to the margin, while the first is slightly arched, but not abruptly taking a divaricating course as in allied genera. The discal cell is closed, but the veinlet is weak, and is, perhaps, not a true nervure. The third median nervule is thrown off from the nervure at a point about midway between the base of the wing and the point at which the first and second nervules divaricate; it is directed downwards, but still slightly arched, and the space on external margin between the nervules is wider than usual, owing more particular to the arcuation of the first median nervule beyond the discal cell. Internal nervule, straight; the sub-median fold runs approximate to third median nervule. Secondaries, irregular in shape. The costa is basally projected, thence depressed or cut away to the apices, these latter rounded and full. The external margin is roundedly produced superiorly, shallowly excavate between the median nervules, again roundedly and shortly produced towards anal angle. Internal

margin long and straight, slightly folded. Costal nervure arched at base and following the shape of the wing, joining the costal margin before the apex. Discal cell somewhat pyriform. The sub-costal nervules are not thrown off together, but the first, on the upper side of the nervure, is thrown off before the divarication of the second and third.

This genus bears a remarkably close though superficial resemblance to Smerinthus, *Latr.*; thus the general appearance is very deceptive. The analogies of Psephopaectes, with the Sphingidae, are not merely expressed in the conformation of the wings; analogical characters may be traced throughout, as, for instance, in the comparatively large eyes, in which an approximation is shown to the saliency of these organs in a higher Family. The affinities of the moth, on the other hand, are with the Bombycidae, and its true position is with Adelocephala, and allied genera belonging to the lower Tribe of the Sub-family Ceratocampidae—the *Dryocampini*.

In Psephopaectes, we have a fresh illustration of the varied and interesting analogical forms afforded by the Bombycidae. Dr. Packard has already remarked: "Within the Sub-order Lepidoptera there is a true and beautiful synthesis located in the Bombyces."* We take, then, the occasion of repeating Dr. Packard's words on this subject, merely to corroborate his views.

Psephopaectes simulatilis, n. sp. (Plate 1, fig. 1, ♂.)

♂. Fawn color, with a light purple shade. Head, thorax and abdomen, uniformly pale fawn color; legs, darker, becoming purplish on tarsi and tibiæ outwardly. Primaries, brownish ochreous, obsoletely irrorate, darker at base and outside of the external transverse line. An oblique, basal, darker, transverse line projected superiorly. Median space, paler than the wing elsewhere, limited externally by a narrow, even, oblique, external, dark brown line, which emanates from costa at apical fourth, and joins internal margin without the middle. Discal cross-vein faintly marked and clouded with darker scales. Outside the external transverse line, the wing is more intensely colored than elsewhere, being of a deep tawny ochreous, and is overcast by a light lilac shade, this latter obtaining as a determinate color, from first median nervule to internal angle along the terminal margin of the wing. The short fringes are dark, especially inferiorly. Under surface, resembling up-

* Packard: On Synthetic Types in Insects, Art. xv, Jour. Bost. Soc. Nat. Hist. Vol. x, p. 602, June, 1863.

per surface of secondaries in ornamentation. Basally and centrally the wing is covered with bright rose-colored, longer, hair-like scales, forming a middle triangular patch. A large, distinct, deep black discal blotch, lying immediately beyond the cell. An external darker transverse band, diffusely shaded outwardly, and becoming roseate where it crosses the middle patch. Internal angle washed with lilac. Elsewhere the ground color of the wing is as on upper surface, becoming very pale along internal margin.

Secondaries, above, with a central bright rose-colored patch of longer, hair-like scales. A large, distinct, deep black, discal blotch like that on under surface of primaries. An arcuate, external, transverse line, becoming roseate where it crosses the central bright shade, above and below which it is more faintly continued. Elsewhere the secondaries are concolorous with upper surface of primaries, and are slightly touched with lilac over anal angle. Under surface, pale dull brownish ochreous, obsoletely irrorate, without markings, except a median diffuse darker shade band which is broadest on costa and discontinued inferiorly.

Expanse, 3.00 inches. *Length of body*, 1.25 inch.

Habitat.—Mexico, (W. H. Edwards, Esq.)

This species is very distinct from Adelocephala subangulata, as illustrated by Dr. Herrich-Schaeffer. Our specimen has lost some of the scales, at the base of the wings above, by atrition.

ADELOCEPHALA, Boisd.

Mr. Walker, (C. B. M., Lep. Het. Pl. 6, p. 1498), in writing for the first time upon this genus, ascribes simple antennæ ("*Foem.*—Antennæ simplices.") to the female. But the first species cited—Adelocephala cadmus, *Boisd*—as illustrated by Dr. Herrich-Schaeffer, has the antennæ (fig. 78) feathered at base, and but little less prominently than in the male (fig. 77), from which latter it differs in the rounded external margins of the wings. We describe here a new Mexican species of the genus, which approaches our United States A. bicolor, *Harris*, sp., quite closely in habitus and structure, but the antennæ (♀) are simple. In the shape of the secondaries, the peculiar color and structure of the feet, our new species (A. quadrilineata), agrees with, and otherwise presents no marked differences when compared with A. bicolor. In the female Adelocephala anthonilis, *Boisd.*, the antennæ are basally impectinate, and in a large and heavy, hitherto undescribed Mexican species, (A. grandis, *nob.*) which equals in size the Brazillian A. cadmus, the ♀ antennæ are also simple. This

genus then, at least provisionally, may contain species in which the ♀ antennal stem may be either simple or basally pectinate; the slight processes with which the antennæ of ♀ A. bicolor are provided, contrasting as strongly with the long pectinations of ♀ A. cadmus, as with the simple ones of ♀ A. grandis. Adelocephala, as here considered, stands higher than Anisota, of which it is, in a certain sense, an out-growth, so speak. Its position is intermediate between Citheronia and Anisota. In arranging the species of this latter genus we naturally begin with Anisota stigma, and conclude with A. rubicunda, a species in which the typical tribal coloration is lost, and the appearance of the moth is disturbed by its analogies with a lower and succeeding Group of Bombycidae.

The North American species referred to, Adelocephala, are as follows:

Adelocephala grandis, n. s., (Plate 1, fig. 7, ♀).

♀. Size, large; form, stout and heavy. Head, rather small and sunken, invisible from above, owing to the well developed and advanced prothoracic parts. Antennæ, simple, short, basally thickened; compared to the size of the insect they may be termed slight. Abdomen, stout and heavy, projecting beyond the anal angle of secondaries. Thorax, globose, heavy and short. The squamation is thick and close, but not woolly, rather smooth and evenly distributed over the body parts. The color is rather pale brownish ochreous; beneath, with a roseate hue which suffuses the under abdominal parts, and is continued over the under thoracic parts and legs at base. The tarsi and tibiæ are purplish, at least outwardly, the anterior pair the darker.

Wings, full and large. Anterior wings somewhat arched along costa from base to apices, which latter are acuminate but depressed. The external margin is somewhat sinuous, since it retreats inwardly below apex to disco-central nervule, where it is somewhat bulged out, rounding thence to internal angle, this latter improminent and rounded off. the internal nervure and margin of the wing being straight and short. Discal cell retreating towards the base of the wing and squarely closed by a stout and true nervure. Above, the primaries are brownish ochreous. A straight, short, obliquely transverse, darker shade line at base crossing the discal cell. About the discal cross-vein, a faint clouded darker shade. The median space is paler than the wing elsewhere and bounded outwardly by a second, greatly longer and more prominent and deeper colored transverse line, which emanates from

costa at apical fourth and runs, with a slight outward inflection, straightly and very obliquely to internal margin, joining the latter at about the middle. Outside of this second and outer transverse line, the wing is darker colored than elsewhere and obsoletely irrorate with dark dots, becoming faintly paler and obsoletely roseate below apices, this brighter hue touching the fringes between 3rd median nervule and internal nervure before the angle. Between first and third median nervules, the wing is deeply clouded with a darker shade than elsewhere. With the exception noted above, the short fringes are dark brownish. Undersurface, brighter colored than upper. Over the middle, from base to the external diffuse transverse band, the wing is covered with longer hair-like roseate scales. Beyond the discal cross-vein, at the base of the interspace between the disco-central and first median nervules, is a prominent discolorous dark purple brown spot, or rather an accumulation of dark hair-like scales; the disco-central nervule springing very near the inception of the discal cross-vein, at a point where this latter is angulated superiorly, the interspace at base is nearly as wide as the discal cell itself. A broad, transverse, external shade band, corresponding with, but not resembling the outer transverse line of the upper surface, since it appears as a broad, bright ochreous band, widest and most distinct on costa, tapering to the stout sub-median fold (the latter an obsolete nervure) and discontinued before internal margin. Below first median nervule, this band becomes roseate; here it crosses the central roseate patch externally and shows as a darker, more linear shade. Outside the external transverse band, the wing is sparsely sprinkled with blackish striæ; below apices washed with a rose colored shade, becoming obsolete inferiorly.

Secondaries with the costa prominently exerted basally, thence cut away straightly and downwardly obliquely to apex. The costal nervure is correspondingly inflected, and joins the margin before the apex. The external margin is rounded outwardly and evenly to anal angle, immediately before which it is retired inwardly at the expense of the straight and short internal margin. Above: the disc and the centre of the wing are taken up with a large roseate patch, composed of longer hair-like scales. At the discal cross-vein, a large, nearly black scale patch, resembling that of the under surface of primaries, only larger and more prominent and darkly colored. Outside of, and limiting this roseate patch externally, is a transverse, somewhat arcuate, dark roseate band, discontinued above and below. Elsewhere the wings are rather dark brownish ochreous, similarly colored with the

primaries outside of the external transverse band, and obsoletely irrorate. Fringes, pale; thus differing notably from the dark fringes of the primaries. Undersurface, rather pale brownish ochreous, obsoletely irrorate; a very broad dark brownish transverse band, resembling that on primaries, becoming obsolete below first median nervule. Externally, the wing is washed with rose color, but this brighter shade is not continued along internal margin or over the angle. No discal spot of any kind.

The upper surface of secondaries interestingly resembles the under surface of primaries, and vice versa; so that each wing reproduces, on one of its surfaces, the approximate ornamentation of the opposed surface of the other. This not unfrequently occurs among the species of the present group.

Expanse, ♀, 5.20 inch. *Length of body*, 2.00 inch.

Habitat.—Mexico, (Mr. W. H. Edwards). No. "130."

Is readily distinguished from the Brazilian Adelocephala cadmus, by the black discal spot of the secondaries above, as well as by the simple ♀ antennæ and a number of other less prominent characters.

Adelocephala albolineata, Grote and Robinson.

Adelocephala albolineata, G. and R., Proc. Ent. Soc. Phil., Vol. 6., No. 1, p. 7, Plate 1, fig. 5. (1866).

Habitat.—Mexico. (Coll. Am. Ent. Soc.)

Adelocephala bicolor, Grote. (Plate 1, fig. 3, ♀., 4, ♀ reverse.)

Dryocampa bicolor, Harris, Rt. Ins., Mass., p. 293. (1841).

Dryocampa bicolor, Harris, Tr. Ins. Inj., Veg., (3d Ed.), p. 408. (1862).

Dryocampa bicolor, Morris, Syn. Lep. N. A., Sm. Ins. p. 232. (1862).

Anisota bicolor, Grote, Proc. Ent. Soc., Phil., p. 63. (June, 1864).

Sphingicampa distigma, Walsh, Proc. Bost. Soc. Nat. Hist., p. 290. (February, 1864).

Dryocampa bicolor, Walsh, l. c., p. 293. (February, 1864).

Dryocampa bicolor, Packd., Proc. Ent. Soc., Phil., Vol. 3, p. 384. (December, 1864.)

Habitat.—Atlantic District.

This species varies in the ground color of the wings becoming more reddish than in the specimen we figure. Such an individual was taken by Mr. Grote in Arkansas, and is now in the possession of Dr. Packard. Although meagre, Harris' description evidently refers to this species, in which the ♀ antennæ are slightly pectinate at base. Mr. Walsh's error in erecting two genera and species on individuals generically inseparable and specifically identical, has been elsewhere sufficiently exposed. In regard to a critical study of all the species of this Tribe, it has already been remarked, that we must be prepared for slight dif-

ferences of structure between the species. Mr. Grote (l. c.) has also written with regard to A. bicolor: "Should, on an examination of actual specimens, our species be found generically distinct, the name proposed by Mr. Walsh will prevail, and our species be known as Sphingicampa bicolor." As yet there seems no propriety in adopting this latter determination.

Adelocephala quadrilineata, n. s. (Plate 1, fig. 2, ♀).

♀. Size, moderate; form a little slenderer than A. bicolor, with which latter species it conforms in appearance and habit. Head, sunken in the prothoracic parts; antennæ, slender, short, and very slightly thickened basally. Thorax, short and stout, globose and elevated, thickly scaled. Above, the head and body parts are bright ochreous tawny; beneath, the abdomen is of a slightly duller and darker color, while the scales fringing the segments and anus are of a brighter tawny ochreous shade. The tibiæ and tarsi are of a dark lead color outwardly.

Wings, full and rounded. Primaries, at base, bright ochreous tawny, which color spreads along costa and over the discal cell, forming a diffuse darker shade about the discal cross-vein. Median space, paler than the wing elsewhere, distinctly limited on either side by two transverse determinate dark brown lines. The first of these is short, slightly angulate at costa, thence running straightly, obliquely inwardly to internal margin. The second, long, emanating from costa at apical fourth, and running straightly and very obliquely inwardly to internal margin, which it joins at about the middle. Outside of this latter line, the wing is again evenly bright tawny ochreous as at base, while the sub-obsolete irrorations are more prominent and perceivable. The external and internal margins are narrowly fringed with dark brown. Undersurface, paler than upper. Over the base, centrally, is spread a diffuse roseate patch; here the scales are longer and hair-like. Beyond the discal cross-vein, a brownish macular discoloration. A single external transverse even dark brown line most distinct on costa, fading towards internal margin. Externally, from the apices downward, the wings are diffusedly shaded with a darker hue.

Secondaries, above, largely bright and deep rose color, becoming more intense in hue towards the base and along external margin, where the scales are longer and more hair-like. Costa and external margin, narrowly pale ochreous tawny. Fringes, very pale; thus quite unlike those of the anterior wings. Undersurface, pale dull ochreous tawny, obsoletely irrorate. A single brown band is drawn across the wings,

most distinct on costa, fading towards internal margin, before which it becomes obsolete. No discal spots on either surface. In shape the secondaries are as in A. bicolor.

Expanse, ♀, 2.85 inch. *Length of body*, 1.10 inch.

Habitat.—Mexico.

Is at once distinguished from ♀ A. bicolor, by the distinct lines of the upper surface of primaries and simple antennæ.

Family PHALAENIDAE.

PERICALLIA, Stephens.

Pericallia kentaria, n. s. (Plate 1, fig. 5, ♀ ; 6, ♀ reverse).

Selenia kentaria, G. and R., MS.

♀. Head and collar, whitish; beneath, the compressed palpi, the under thoracic parts and inside of the legs are deep obscure ochraceous. Outwardly, the legs are palely colored and everywhere sparsely and finely irrorate with blackish scales. Thorax, above, loosely haired, pale, dull whitish fawn color; the scales anteriorly, from beneath the "collar," are darker tinged. Abdomen, hardly as long as internal margin of secondaries, pale ochraceous, irrorate with black scales and with diffuse sementary pale shades continued entirely around. Antennæ, moderate; the stem, above, is covered with pale scales, beneath it is brownish, with a double row of reduced pectinations.

Wings shaped as in P. syringaria. Costa of primaries sinuous; roundedly produced at base, depressed before the truncated apices. External margin produced medially, sub-excavate between the nervules. Dull fawn color with bright ochraceous and whitish shades, sparsely and rather coarsely irrorate. At extreme base the costal region is bright ochraceous, mottled with ferruginous transverse streaks, forming a distinct blotch. Below the median nervure, from the base to the third transverse band, the wing is dull fawn color. Costal region more whitish than elsewhere. Three deep brown transverse irregular bands cross the wing from costa to internal margin. These are very broadly marked on costal region, below which they are linear, the first and second slightly diffuse. The first is angulated outwardly on median nervure. The second, at the middle of the wing, is somewhat flexuous or sinuate. The third band follows the second, at a nearer distance than the second does the first; this is distinct and linear, less heavily marked on costa than the others, rounded outwardly to median nervure, where it is bent inwardly, thence running straightly to internal margin. At extremity of the discal cell, between the second and third transverse bands, the wing is suffused with bright ochraceous. A

linear, oblique, clear colored discal streak. Outside of the third transverse line, the wing is broadly pale fawn color, darker in color than the whitish costa. Terminally, the wing is bright ochraceous from apices to internal angle; the whitish costal scales extending downwards and linearily intruding so as to form a pre-apical semi-circular mark; the short fringes are dark brownish. Internal margin fringed with long concolorous fawn colored hair. Undersurface, resembling upper, but brighter colored and more distinctly marked. The paler shades are lighter, and the darker shades deeper than on the upper surface. The nervules are distinctly relieved terminally by dark scales.

Posterior wings, resembling primaries in general coloration and appearance. At base darker, dull fawn color. Two parallel approximate dull brownish transverse lines; between these, the wing is more ochraceous than elsewhere. The inner of these lines crosses the clear colored comma-shaped discal streak. Beyond the outer line, the pale ground color appears as a coincident transverse pale shade. Terminally, the wing is ochraceous, while at anal and costal angles the pale ground of the wing diffusely intrudes. The short fringes are dark brownish. Beneath, as on primaries, the secondaries are very much more brightly marked. Base, largely bright ochraceous, transversely mottled with ferruginous transverse streaks. The inner line is diffuse, distinct and bright ferruginous. Outside the second line the coincident pale shade is white. Beyond it, the wing is darker than on upper surface. The "veins" are generally picked out by dark scales.

Expanse, ♀, 2.00 inch. *Length of body*, 0.70 inch.

Habitat.—Atlantic District. (Brewster's, Putnam Co., N. Y., April 14th! C. T. R.)

Appears to represent the European Pericallia syrangaria, *Stephens*, in the fauna of the Atlantic District. It is a larger and brighter colored species. The markings, while quite similar, are more prominently expressed; this is especially true of the ochraceous tints of both surfaces and of the transverse bands of the primaries, which are more broadly marked on the costal region of the upper surface than in the European species. The second transverse band is more irregular, while the third is inwardly bent on the median nervure. In P. syringaria, the third band is straight and further removed towards the external margin of the wing. The latter seems to afford a ready character by which we may distinguish this fine species from its European congener. Appearing very early in the season, P. kentaria seems as yet to have escaped the notice of our collectors of Lepidoptera. It is an interesting

and beautiful addition to the Lepidopterous fauna of our Middle States.

Family, PYRALIDAE.

Sub-Family, PYRALIDIDAE.

In the Wiener Entomologische Monatschrift, Vol. 7, 1863, will be found an extended Revision,* by Jul. Lederer, of the Pyralidae, which, while it takes cognizance of all the species of the Family that had been noticed by Authors up to that date, is of great interest to the student, from the originality of the classificatory views therein presented. In offering the descriptions of certain Pyralidae, chiefly from the Atlantic District of the United States, it is not our purpose to discuss the merits of Lederer's Classification of the Family, which will be found to differ radically from that of Messrs. Guenèe and Walker. We briefly refer to the circumstance, that the species formerly separated under the generic names *Ennychia* (non Led.), *Rhodaria*, and *Pyrausta*, are united to Botys, *Treits.*, which latter genus thus obtains a much wider signification than had previously been accorded to it by Authros. For the reasons adduced by Lederer for this change, as well as for critical remarks on M. Guenèe's so-called "Families" in this Group, we refer the Student to the Paper itself, and have contented ourselves for the present in citing our former MS. determinations of certain species, where such appeared to belong to genera not recognized by the Austrian Entomologist.

ASOPIA, *Treitschke*, emend. *Led.*

Asopia unimacula, n. s. (Plate 2, fig. 8, ♂.)
Pyralis unimacula, G. & R., *MS.*

Palpi short, whitish beneath. Head and thoracic region, above, obscure olivaceous fuscous or blackish. Abdomen, a little paler than thorax, the segments narrowly edged posteriorly with whitish scales; beneath, glistening, whitish. Legs, testaceous whitish, a little darker shaded inwardly on the femora; under thoracic surface, whitish.

Anterior wings, silky, of an obscure fuscous or blackish color, with a slight opaline reflection; all the markings are obsolete, except a broad, evident, pale yellow costal blotch or abbreviated band, situate at without the middle, and rather distinctly margined; outwardly, this spot has a sinuous depression; it is also somewhat obliquely placed,

* "Beitrag zur Kenntniss der Pyralidinen." Jul. Lederer, W. E. M. vii Band, Nos. 8—12, Aug.—Dec., 1863, Taf. 2—18.

and is rounded inferiorly. Below this costal patch, are two or three small testaceous spots, fragments of a transverse band and somewhat coalesed in certain individuals. Secondaries, concolorous with primaries, shaded basally with paler scales, these latter allowing a median dark irregular line, margining the paler portion of the wing externally, to become obvious; medially, the costa is diffusedly testaceous; fringes, pale. Undersurface of anterior wings, resembling upper surface; the internal margin is diffusedly paler, testaceous. Posterior wings, largely testaceous, shaded with fuscous externally; a sinuate dark subterminal line, continued from costa to just before internal margin above the angle; a sub-basal, similar line, which is curved outwardly, and apparently joins the sub-terminal line at the middle of the wing; the space enclosed in this manner superiorly between the two lines, is, perhaps, more yellowish than elsewhere, and corresponds to the paler shade of the upper surface.

Expanse, ♂, ♀, 0.80 inch. *Length of body*, 0.40 inch.

Habitat.—Atlantic District. (Penna.!)

Allied to the common Asopia olinalis, *Lederer*, (*Pyralis olinalis*, Guenèe), but a smaller species, with a different coloration and very distinctive ornamentation. Both Asopia olinalis, and Asopia costalis, *Fabr.* sp., occur in New York State. Of the former, Asopia trentonalis, *Lederer*, is probably a synonym. The latter is regarded as identical with the European species.

Asopia anthoecioides, n. sp. (Plate 2, fig. 9, ♀).

Head, thorax and abdomen, pale dull brownish above and beneath; head and appendages, a little darker; legs, concolorous; anterior and middle femora, a little richer colored.

Anterior wings, pale brownish, neatly defined into separate fields by the narrow transverse lines and markings. A pale, somewhat greyish, narrow, basal space. Outside of this, and neatly defined by narrow marginal lines, is a transverse oval rich olivaceous brown patch, narrowing to costal and internal margins. The median space, immediately beyond this dark sub-basal space, is, for half its width, paler than the wing elsewhere; a faint median linear shade line, between which, and a narrow clear post-median line, the outer half of the median space is darker shaded and more brownish. The post-median line and the pale line margining the dark sub-basal patch outwardly, remind us of the transverse posterior and transverse anterior lines in Anthœcia. The post-median line is sub-sinuate; beyond it, the terminal space of the wing is shaded with brownish, a little mixed with reddish, from

the apex downward, apically the shade is deepened, throwing out the pale color of the narrow post-median line at the costa more strongly than elsewhere, from the contrast. Posterior wings, concolorous with abdomen, a little more cinereous and darker basally; terminally, the wing shows a pale shade and a faint continuous transverse line, running within and nearly coincident with external margin. Undersurface of both wings, cinereous, shaded with purplish along external and costal margins; a common, distinct, pale, sub-terminal line crosses both wings; on the primaries this is somewhat S-shaped, corresponding to its analogue on the upper surface. Fringes, dark.

Expanse, ♂ ♀, 0.65 to 0.75 inch. *Length of body*, 0.30 to 0.45 inch.

Habitat.—Atlantic District. (N. Y. to Penna.!)

The anal segment of the abdomen is somewhat suddenly constricted and produced in the female of this very interesting species, which somewhat curiously recalls the ornamentation of Anthoecia, and more distantly the habitus of Ichthyura. Of the American species referred to Asopia, by Lederer, it seems to more nearly resemble the common Asopia farinalis, *Linn.* sp., than any other, but is much more robust in the body parts, compared with the general size.

BOTYS, *Treitschke*, emend. *Led.*

Botys signatalis. (Plate 2, fig. 11, ♂).

Rhodaria signatalis, Walker, C. B. M. Lep. Het., Pt. 34, Sup. Pt. 4, p. 1282, (1865).

Male and Female.—Head, above, and palpal tips, reddish ochraceous; very narrow paler lateral lines on the "front," margining the eyes; beneath, the palpi are whitish. Thorax, dark ochraceous, with a faint reddish tinge; abdomen, cinereous, silky, shaded with ochreous at base, the segments narrowly fringed posteriorly with pale scales; anal tuft rather prominent, reddish ochreous above, beneath whitish. Undersurface of thorax and abdomen, silky, whitish. Legs, whitish, faintly shaded with cinereous outwardly.

Anterior wings acute. Above, of an even intense pinkish-purple color; two transverse distinct yellowish-white lines; the first (ante-median) is discontinued at the costa, and very slightly irregular, nearly straight; the second (post-median) is strongly outwardly arcuate superiorly; over the median nervules, where it is most constricted, it is composed of disconnected dots, closely approximate; inferiorly, it runs parallel with and more approximate to the first line to internal margin. Posterior wings, silky, cinereous, deepening in hue towards external

margin, nervules darker clothed; a pale streak within anal angle, margined without by a very few roseate scales, and discontinued above median nervure. Fringes a very little paler than on anterior wings. Undersurface of wings, silky, cinereous, with a faint purplish lustre, darkest superiorly, and with a median faint pale shade line across both pair, arcuated on anterior wings where it is analogous with the post-median line of the upper surface.

Expanse, 0.75 inches. *Length of body*, 0.35 inches.

Habitat.—Atlantic District. (Mass. to Pa. !)

Mr. Walker's description makes no mention of the abbreviated band on the upper surface of posterior wings; the anal tuft is not "whitish," nor are the fringes of the secondaries properly characterized as of the same hue. The hind wings are rather dark cinereous, not "æneous," or concolorous with the fringes of the primaries. Nevertheless, the general coloration and the conformation of the distinct lines of the upper surface of anterior wings, lead us to believe, that this is the species intended in the British Museum Lists. In the case that a new name be used for this species, we propose that of Botys (Rhodaria) vinulenta, *nob.* Athaloessa signatalis, *Zeller*, sp., had been already described at the time of the publication of Rhodaria signatalis. *Walker.*

A single specimen, brought by Mr. Ridings from Colorado Territory, offers no points of distinction, when compared with specimens of B. signatalis, from the Atlantic States.

Botys laticlavia, n. sp. (Plate 2, fig. 12, ♂.)

Rhodaria laticlavia, G. & R., *MS.*

Male and Female.—Head, above, and palpi obscure ochreous fuscous; two narrow, white lines run from the tips of the palpi, along their superior edge, back to the antennal bases, narrowly margining the eyes on the front; beneath, the palpi are white at base. Thorax, ochreous; abdomen, pale dull ochraceous, the segments obsoletely defined by a paler edging of scales posteriorly; beneath, the legs and under corporal surface are of a dull pale color, not whitish, but of an obscure ochraceous or cinereous hue. Antennæ, dark, somewhat purplish superiorly.

Anterior wings, light purple, silky; a broad, rather square, yellow patch at base, resting on internal margin, but not attaining the costal region; a distinct, sub-spherical, yellow discal spot; a broad, yellow, slightly oblique, sub-terminal band, a little narrower and constricted in the female, running from internal margin to costal region, not attain-

ing the costa. Fringes, light purple, concolorous. Posterior wings, silky, pale cinereous, with a purple shade, most prominent along external margin; a faint, rather broad, pale yellow band is obsoletely continued from anal angle, and corresponds to the sub-terminal band of the anterior wings. Under surface, faintly cinereous, silky, with a purple shade superiorly along and beneath costal region of both pair of wings, giving place inferiorly to a faint yellowish tinge.

Expanse, 0.80 inch. *Length of body*, 0.35 inch.

Habitat.—Atlantic District. (Penn.!)

Resembles Haematia phoenicealis, *Hübner*, Zutr. 1tes Hund. No. 58, p. 22, figs. 115—116, but is a slightly larger species, and readily distinguished by the discal spot on the upper surface of the primaries, and the paler, purplish, and almost concolorous under surface of both wings.

Botys cinerosa, n. sp. (Plate 2, fig. 13, ♂.)

Rhodaria cinerosa, G. & R. *MS.*

Head, palpi and thorax, olivaceous cinereous; tegulæ and "collar," very slightly shaded with purplish. Two narrow white lines extend, one on each side, from the palpi along their upper edge to the base of the antennæ. Abdomen, olivaceous cinereous. Beneath, the under corporal surface and legs are whitish cinereous, palpi narrowly edged with whitish scales.

Anterior wings, silky, light purple, with concolorous fringes. A broad, rather square, olivaceous cinereous patch at base, resting on internal margin, but not attaining the costal region which is everywhere purple; a rather distinct, sub-spherical, cinereous discal spot; a broad, cinereous, slightly oblique subterminal band, running from internal margin to costal region. Posterior wings, silky, pale olivaceous cinereous; the fringes and external margin are stained with light purple, most evident centrally along the extreme edge of the external margin.

Under surface of both wings, obscure cinereous, washed with pale purplish along costal and external margins; fringes, pale purple.

Expanse, ♂ ♀, 0.65—0.75 inch. *Length of body*, 0.30—0.40 inch.

Habitat.—Atlantic District. (Penna.!)

This species resembles Botys laticlavia, *G. & R.*, exactly in the ornamentation of the upper surface of the primaries, but the markings are here cinereous, not yellow; the corporal coloration presents also the same difference.

Botys diffissa, n. sp. (Plate 2, fig. 16, ♂.)

Rhodaria diffissa, G. & R., *MS.*

Head and palpi, obscure cinereous; thorax, cinereous; tegulæ stained with reddish-purple; abdomen, cinereous, above and below stained with purple; beneath, the legs and corporal parts are pale yellowish cinereous, the former somewhat the palest.

Anterior wings, dark reddish-purple; a moderately broad, sub-basal, bright yellow band, rests on internal margin, where it is broadest, not attaining costal region. A distinct, yellow, discal spot. A sub-terminal, moderately broad, bright yellow band, runs from costa, before the apex, to internal margin, bent inwardly below the middle of the wing, but elsewhere running parallel with external margin; fringes, purple. Posterior wings, reddish, of a slightly fulvous shade; fringes and external margin, purplish; a narrow, yellow, discontinued streak within anal angle, otherwise the wings are concolorous, without markings.

Under surface of wings, reddish, a little paler than secondaries above; the color is evenly distributed, except along internal margin of primaries, where, as usual, the wings are discolorously shaded with cinereous. The primaries show a yellowish discal spot and narrow subterminal band, obsolete before internal margin; apices tinged with obscure purplish. The secondaries show a distinct, continued, yellow, subterminal band, running at variance with external margin, since it emanates at anal angle, and joins the costa within apical angle at a point continuous with the sub-terminal band of the primaries.

Expanse, ♂ ♀, 0.60 inch. *Length of body*, 0.30 inch.

Habitat.—Atlantic District. (Louisiana!)

Resembles Haematia phoenicealis, *Hübner*, but the primaries are more rounded at the apices, and they show a distinct discal dot; the secondaries, as also the under surface of both wings, are almost entirely bright reddish; the corporal parts are also differently colored.

A specimen, taken at New Orleans, was obligingly communicated to us by Mr. Wm. H. Edwards. B. diffissa, is also found in Cuba; specimens, with the No. 454 attached to them, have been forwarded to Philadelphia by Prof. Poey.

Botys haruspica, n. sp. (Plate 2, fig. 14, ♂.)

Pyrausta haruspica, G. & R., *MS.*

Head, palpi and thorax, obscure purplish cinereous; lateral narrow pale lines extend along upper palpal edge to the antennal bases. Abdomen, dark cinereous. Beneath, the palpi and under corporal surface and legs are whitish cinereous; anterior femora, darker colored outwardly.

Anterior wings, acute; above, rather dark purple; fringes, long, yellow. Centrally, the wing is crossed by three approximate, broken, irregular, transverse, yellow bands, which do not extend over the costal region. The costal edge, apically, is yellow. The outer of the central yellow bands appears to enclose a sub-terminal sinuate line of the ground-color of the wing, and angulated inwardly below the middle. Posterior wings, silky, light purple, becoming paler and somewhat cinereous towards the base and along external margin; an interrupted, oblique, yellowish streak, emanates sub-terminally within anal angle, and is obsoletely continued to costa at within apical angle; fringes, yellowish. Under surface, pale testaceous; anterior wings, broadly shaded with obscure purplish along costal and external margins; centrally, the markings of the upper surface are obsoletely indicated; fringes, yellow. Posterior wings, faintly shaded with light purplish along costal and external margins; an obsolete, sub-terminal purplish line and discal spot; fringes, yellowish.

Expanse, ♂ ♀, 0.65—0.70 inch. *Length of body*, 0.30—0.40 inch.

Habitat.—Atlantic District. (Mass. to Penna.!)

A somewhat variable species in the appearance of the central yellow markings of the upper surface of primaries, and of common occurence.

Botys generosa, n. sp. (Plate 2, fig. 10, ♂.)

Head, palpi and thorax, above, dull obscure blackish; abdomen, blackish, the segments narrowly edged posteriorly with yellowish. Beneath, the palpi, legs and corporal parts are whitish testaceous, silky.

Anterior wings, dull obscure blackish, shaded obscurely and largely with dull brownish over the middle; two transverse dull black lines; the sub-basal acutely dentate, the last outward inflection the most prominent; the sub-terminal, oblique, finely dentate, inwardly inflected below the middle of the wing. A squarish, yellow, discal spot. At the costa, the sub-terminal transverse line is broadly bordered outwardly by a yellow band which, below the first median nervule is obsoletely and quite narrowly continued to internal margin. Terminally, the wing is dark colored, and there is a faint series of black nervular marks before the external margin, on which latter rest a terminal series of interspaceal dark dashes obsoletely separated; fringes, dark, paler at their outer extremities. Posterior wings, black or blackish; a yellowish discal spot, and the base shows a few scattered yellowish hairs; a very broad and evident median yellow band, widest superiorly

where it does not attain the costal margin, tapering to anal angle which it hardly reaches; fringes, whitish, as is the costal margin. Under surface of wings, pale yellow; a black discal dot, sub-terminal band (this on the primaries is very broad, oblique, and discontinued at about the centre of the wing, when, below it, the sub-terminal line of the upper surface is apparent), and a broad, terminal, black shade on both pair of wings.

Expanse, ♂, 0.80 inch. *Length of body*, 0.35 inch.

Habitat.—Atlantic District. (Penna. !)

Resembles some of the European species referred by Westwood to Pyrausta. The primaries are less trigonate than in the common Botys insequalis, *Lederer*, (*Herbula insequalis*, Guenée).

Botys ventralis, n. sp. (Plate 2, fig. 23, ♂.)

Male and Female.—Blackish-brown, slightly glossy, varying in the depth of shade in the general color, which is sometimes ochraceous. Palpi, head and thorax, above, blackish-brown; a narrow, white line margining the eyes on the "front;" abdomen, paler than thorax, concolorous with posterior wings, the segments are obsoletely margined posteriorly with paler scales. Beneath, the palpi, legs and under thoracic surface, are obscure or dirty whitish, the femora, inwardly, are darker shaded; abdomen, obscure whitish, with a rather broad, distinct, central, brownish ventral stripe, and, laterally, one on each side, narrower and improminent.

Anterior wings, uniformly blackish-brown, concolorous, or nearly so, with the thoracic parts above. All the markings are obsolete, except the usual transverse posterior or post-median line, which is prominently angulated, being greatly produced outwardly, centrally, and which consists of a faint blackish line, connecting a series of white, irregular and variable white marks and spots, which latter are partly cuneiform and lunate as to their shape, discontinued at the sub-median nervure, (above which usually the largest is placed), and, as a whole, become, especially in the darker specimens, more or less obsolete and wanting. A similarly constituted discal dot, more or less distinct, and often obsolete. Posterior wings, nearly uniform brownish cinefeous, with faint traces of a median, interrupted and irregular darker line. Fringes, on both pair, paler than the ground-color of the wings, very glossy and rather long. Under surface of both wings, glossy, obscure brownish cinereous, slightly iridescent; the posterior wings are palest, and both pair without defined markings, except in so far as the ornamentation of the upper surface is feebly reflected.

Expanse, ♂ ♀, 1.10—1.15 inch. *Length of body*, 0.50 inch.

Habitat.—Atlantic District. (New York to Penna.!)

A common and variable species as to its general coloration, and the distinctness of the markings of the upper surface of anterior wings. The coloration is, however, uniformly distributed, and thus the paler, more ochreous individuals are easily identified from the constancy of the main characteristics of the species; among the specific characters easily seized, are the longitudinal stripes of the inferior abdominal surface, a character to which we have alluded in the choice of the specific name.

Botys ventralis, *nob.*, resembles Tholeria illiberalis, *Hübner*, Zutr. 3tes Hund., No. 175, p. 27, figs. 349—350, but is a smaller species, and wants the terminal white dots on the upper surface of primaries, while the extra mesial line of white dots is straighter and nervular in the South American species.

Botys posticata, n. sp. (Plate 2, fig. 25, ♂.)

♂. Head and thorax above, pale ochreous brown. Labial palpi, prominent, beneath with a few whitish scales, laterally concolorous with head and thoracic region above. Abdomen, very pale obscure ochreous, beneath paler, whitish, as are the legs and under thoracic surface.

Wings, shaped nearly as in Botys ventralis. Anterior pair ochreous brown, becoming of a clearer and brighter brown along costa and external margin. Ornamentation simple; an inner, transverse, sinuate, blackish shade line; two ill-defined, discal, dark maculations, of which the outer, the larger; an oblique, finely dentate, transverse, posterior, dark shade line, outwardly projected opposite the disc, succeeded by a coincident pale shade. An obsolete series of interspaceal dots on the margin. Fringes, silky, discolorous with the wing, being of an obscure wood-brown. Beneath, whitish ochreous; the blackish markings of the upper surface repeated less distinctly. Secondaries, brownish testaceous, semi-transparent, dark shade along external margin; very faint traces of a median, diffuse, dark shade line. Under surface resembling upper, but paler, more ochreous.

Expanse, ♂, 0.90 inch. *Length of body*, 0.40 inch.

Habitat.—Atlantic District. (Penna!)

Varies by the primaries being of an even, bright brown above, obscuring the ornamentation.

Botys citrina, n. sp. (Plate 2, fig. 20, ♀.)

♂ ♀. Size, small. Bright ochre-yellow. Head and thorax ochre-yellow; labial palpi, brownish-ochreous laterally, beneath white. Legs and under body surface, whitish, glistening; anterior femora stained with ochreous inwardly. Abdomen, above, whitish, with a yellowish shade. Antennæ, slender, long, testaceous.

Wings, rather wide. Primaries, above, bright ochre-yellow, with simple ornamentations. A distinct, deep ochreous, longitudinal shade on costa, extending from the base of the wing to the inception of the exterior transverse line, fading as it proceeds, and not equally distinct in all specimens examined. An inner, regularly outwardly curved, deep ochre-yellow, transverse line. Two similarly colored discal ordinary spots. An exterior line, slightly oblique, and roundedly outwardly produced opposite the disc. Fringes, concolorous with the wing. Under surface paler, especially along internal margin, where the wing is whitish. The markings of the upper surface are here reproduced more faintly and incompletely, but the costal shade stripe is wanting.

Secondaries, resembling primaries in color. At base paler, and as well as along internal margin, somewhat whitish. A single, incomplete, deep ochre-yellow, oblique transverse line, corresponding to the exterior transverse line of primaries. Fringes concolorous. On both wings the extreme external edge appears narrowly deeper colored. Beneath as above, but much paler, more whitish, evenly colored; the single, transverse, incomplete line, is here reproduced.

Expanse, ♀, 0.80; ♂, 0.70 inch. *Length of body*, ♀, 0.30; ♂, 0.35 inch.

Habitat.—Atlantic District. (New York! Penna.!)

Differs by its small size, bright color, simple ornamentation, and by the costal darker longitudinal shade of the upper surface of primaries.

Botys marculenta, n. sp. (Plate 2, fig. 21, ♀.)

♀. Size, moderate. Pale ochrey-yellow. Head and thorax, above, ochrey-yellow. Labial palpi, dark ochreous laterally, white beneath. Legs, and under corporal surface, obscure whitish, glistening; anterior femora somewhat cinereous. Abdomen, whitish, stained with yellow above. Antennæ, long and slender.

Wings, full, clear pale yellow, with obsolete ornamentations. Primaries rather brighter colored about the base, but with a generally evenly distributed coloration. The ordinary lines and spots are faint, but perceptible, since they are traced in darker scales than the ground color of

the wing, and are, with the basal portion, slightly dusted with brighter scales. An inner, waved, transverse line. Two ordinary discal spots. An exterior, finely dentated, transverse line, which is prominently and roundedly outwardly projected opposite the disc. A faintly marked and straighter sub-terminal shade line, difficult to discern, but quite distinctly marked in cinereous on the under surface. Fringes, concolorous, or a little paler than the wings. The external edge of both secondaries and primaries is narrowly lined with darker ochrey-yellow; this is quite apparent on the under surface owing to the pallor of the wings, where the line appears broken interspaceally.

Secondaries, resembling primaries. As usual, the base, costal and internal margins are diffusedly paler and whitish, while the darker and yellow color is expressed centrally along external margin, fading medially over the centre of the wing. Outside of the disc the wing is crossed by two sub-parallel shade lines, of which the inner corresponds to the exterior transverse line of the primaries; the outer, to the sub-median shade line. Fringes a little paler than the wing, becoming whitish towards anal angle.

Beneath, both wings are glistening, obscure whitish, with a slight opaline reflection. The markings of the upper surface are here more distinctly reproduced in pale cinereous. The costa of primaries and external margin of both wings are shaded with obscure ochrey yellow.

Expanse, ♀, 1.00 inch. *Length of body*, 0.40 inch.

Habitat.—Atlantic District. (Penna.!)

Differs from Botys citrina, *nob*, by its larger size, paler color, indistinct ornamentation and by the presence of sub-median lines of both wings.

Botys insularis, n. sp. (Plate 2, fig. 24, ♂).

♂. Size rather large. Cinereous. Head, thorax and abdomen, of an even dull cinereous. Beneath, the short palpi, legs and abdomen are whitish cinereous, glistening. Legs, long, armature well developed.

Wings, full. Primaries with the tips a little produced, entirely and evenly cinereous, with obsolete ornamentation, but the usual exterior transverse line is faintly visible and greatly and roundedly arcuate at the middle. Fringes, a little paler than the wing, very silky. Secondaries, a little paler than primaries, evenly cinereous, but becoming a little paler basally and along costal and internal margins. As on primaries, a single transverse, irregular, extra discal shade line is barely

visible. Fringes, paler than the wing, becoming whitish over anal angle. Undersurface resembling upper, but a little paler, especially on secondaries. The exterior lines of the upper surface are here reproduced, and there are faint indications of discal marks on both pair; those on the secondaries well removed towards the base of the wing.

Expanse, 1.15 inch. *Length of body*, 0.45 inch.

Habitat.—Cuba, (Poey). Coll. Ent. Soc.

Number 1029, *Poey's MS. Catalogue.*

Resembles Botys dasconalis, *Walker*, from our Atlantic District, but is a darker species, and wants the ochreous discolorations over the prothorax and from the base of the wing outwardly along the costa, which characterize our species, of which we have specimens from Massachusetts and Pennsylvania.

Botys coloradensis, n. sp. (Plate 2, fig. 18, ♀).

♂ ♀. Size rather large. White. The palpi laterally, head, above, and the sides of the thorax to the insertion of the primaries, are ochreous; the thoracic stains are very bright. Thoracic disc, white. Abdomen, above and beneath, pure white, as are the legs and under corporal surface generally; the anterior tibiæ are somewhat cinereous. In the male, the anal segments are faintly stained with pale yellow.

Primaries of an even faintly yellowish white, stained at base, along costa, with bright ochreous. An interior angulated transverse line, two discal dots and an exterior slightly dentate transverse line medially projected—all yellowish ochreous. A sub-terminal, similarly colored, shaded line, interspaceally broken. Fringes, whitish. Secondaries, immaculate, sub-hyaline, whitish above and beneath; fringes pure white. Undersurface of primaries resembling upper, but more whitish and somewhat obsolete, and reproducing the ordinary ornamentation.

Expanse, ♂ ♀, 1.15 inch. *Length of body*, 0.65 inch.

Habitat.—Colorado Territory. (Mr. James Ridings).

Botys gracilis, n. sp. (Plate 2, fig. 15, ♂).

♂ ♀. Size, small. Form, slender. Pale brownish testaceous. Palpi, white beneath; laterally, covered with brown scales. Above, the head, thorax and abdomen are pale brownish testaceous; beneath, the legs and under thoracic and abdominal parts are whitish, glistening.

Wings, elongate; ornamentation simple and typical. Primaries, evenly pale brownish testaceous. Costa and costal edge shaded with brown. A nearly straight, brown, transverse anterior line. Two dis-

cal, annulate, moderate, ordinary spots: the first, spherical; the last elongate, sub-reniform in shape. Below the median nervure, a slight aggregation of brown scales. A brown transverse posterior line, slightly trembled below the costa, but running straightly outside the disc, over median nervules, where it is strongly inflected backwards to a point beneath the outer discal spot, running thence straightly to internal margin. A very distinct, deep brown, terminal, regularly interrupted line. Fringes, rather long, with a faint linear basal shade on both pair.

Secondaries, resembling primaries in coloration, thinly scaled. A brown discal spot, and a single brown transverse line, analogous to the transverse posterior line of primaries, and prominently inflected backwards below the discal cell. A terminal, distinct, macular, brown line as on primaries. Beneath, both wings are paler than above, with the ornamentation of the upper surface more fluently reproduced.

Expanse, ♂ ♀, 0.90 inch. *Length of body*, ♂, 0.45, ♀, 0.30 inch.

Habitat.—Atlantic District. (Mass. to Penna. !)

A very slender, thinly scaled, and delicate species of common occurrence throughout the Middle States. Differs by its transparent brownish testaceous color and by the stained costal edge. Specimens occur in which the transverse anterior line of the primaries becomes obsolete along its backward inflection; the primaries then appear to be crossed by *three* transverse lines. The obsolescence of this line at this point is not an unusual occurrence in other species of the genus and family.

Botys adipaloides, n. sp. (Plate 2, fig. 19, ♀).

♂ ♀. Size, moderate. Head, prothorax and palpi, obscure brownish, beneath, white. Thorax, above, shading posteriorly to yellowish. Abdomen, above, brownish; the segments are edged with whitish scales, basally mixed with yellow scales above. Beneath, the abdomen, thoracic parts and legs are obscure whitish, silky.

Wings, shaped nearly as in Botys adipalis, *Zeller*, as illustrated by Lederer. Primaries arched before apices, on costa. External margin sinuate, retreating within the produced apices, thence outwardly rounded at extremities of median nervules. Secondaries with the apices well produced, the external margin receding immediately below them, thence evenly rounded to anal angle. Both primaries and secondaries are rather bright clear yellow. All the markings are of an obscure purplish stone color. Primaries, dark dull brownish along costa. An inner transverse narrow line. Two large quadrate

discal spots, of which the inner surmounts a third below the median nervure. A narrow, sub-serrate, transverse posterior line, projected outwardly opposite the disc. A very broad distinct terminal dark marginal band. Fringes, paler, with a basal line. Secondaries, resembling primaries. A basal interrupted line. An elongate discal spot. An exterior transverse sinuate line, interrupted along its inferior inward inflection, but distinct from internal margin to beneath the discal spot, where it is also straight; this portion of the line, being thus disconnected, assumes the appearance of an independent middle line. Externally, the secondaries are broadly margined as the primaries. The inner edges of these marginal bands are analogous on both wings, being outwardly oblique, thus constricting the bands over the middle of the wings; before interal angles the bands are widened again, more suddenly on primaries. Beneath, the ornamentation is as on upper surface on both wings, but the ground color is very pale testaceous, not yellow, while the darker markings are also paler than on wings above.

Expanse, ♂ ♀, 0.90 to 0.85 inch. *Length of body*, 0.45 to 0.40 inch.

Habitat.—Atlantic District. (Mass.! to Texas!)

Smaller than the Cuban Botys togalis, *Led.*, which the present species resembles in ornamentation, and apparently nearest allied to B. adipalis, *Zeller*, from Amboina; besides minor differences the dark margins are narrower in B. adipaloides, *nob.*, and the inner discal spot is geminate in both sexes and on both surfaces of primaries. The bright yellow color of the wings is easily lost, and captured specimens appear to have an obscure ochreous testaceous ground color of the wings instead of the bright, rather clear and light yellow which is seen in clean and fresh individuals.

Botys plectilis, n. sp. (Plate 2, fig. 17, ♀).

♂ ♀. Size moderate. Obscure fuscous, with a slight purplish reflection. Head, thorax and abdomen, above, dull brownish fuscous, abdominal segments obsoletely margined posteriorly with pale scales. Beneath, obscure whitish, as are the legs, of which the anterior pair are inwardly darker colored. Labial palpi, moderate, extended horizontally beyond the front, concolorous with the upper body parts, with a few paler scales at base beneath.

Wings shaped as in B. artificalis, *Led.* Primaries, largely obscure brownish fuscous. Ornamentation, simple, typical. A transverse inner

line, obscured by the dark ground color of the wing. A square pale yellow discal patch, resting between the small dark discal dots. Transverse posterior line more distinct, brought into relief by a diffuse pale yellow shade, which latter obtains principally opposite the disc within the t. p. line. This latter is projected outwardly opposite the disc, where it is serrated; below the yellow shade it becomes lost, owing to the dark color of the wings. A terminal dark shaded line resting on the external edge; fringes obscure brown, discolorous with the wing. Secondaries resembling primaries; at base fuscous, the dark color obscuring a discal spot apparent beneath; medially pale yellowish testaceous; a distinct median line, followed outwardly by an interrupted yellowish shaded line, so as to be brought into relief by the yellowish color on both sides, of the normal conformation, serrated, outwardly projected opposite the disc. A terminal blackish interspaceal line and fringes, as on primaries. Beneath, paler than above; primaries, darker shaded, with a slight opaline reflection; secondaries, wholly obscure ochreous. On both wings the ornamentation of the upper surface is repeated, the lines are here narrowly interrupted and macular.

Expanse, ♂ ♀, 0.70 to 0.90 inch. *Length of body*, 0.35 to 0.45 inch.

Habitat.—Atlantic District. (Penna.!)

A common species, variable as to size. When rubbed, specimens present a different and paler appearance. B. plectilis, is allied to B. artificalis, *Led.*, and certain European species of the genus.

LIPOCOSMA, *Lederer.*

Lipocosma albolineata, n. sp. (Plate 2, fig. 22, ♀).

♀. Whitish ochreous. Head and thorax, whitish ochreous. Labial palpi slight, divergent, thinly scaled, porrected and slightly exceeding the "front." Legs and under corporal surface, white, glistening; anterior tarsi and tibiæ, touched outwardly with bright ochreous. Abdomen, above, white. Antennæ, moderate, slender.

Wings full. Primaries, pale ochreous, with darker sub-terminal shades. The inner transverse line is white, margined outwardly with an obscure coincident shade, and is regularly dentate, appearing somewhat angulated at costa. Median space, diffusely shaded posteriorly by an obscure shade, deeper, more brownish than the ground color of the wing. Discal spot, sub-obsolete, whitish. Transverse exterior line, white, neatly margined by narrow dark coincident shade lines of which the inner is more distinct. The line itself is greatly and roundedly outwardly projected over the middle of the wing; towards the internal

margin it bends inwardly, and is once waved; it is very regularly arcuate and minutely dentated on the nervules.

Terminally it is again continuously obscurely shaded along the outer edge, as on median space immediately inside of the transverse exterior line, but the shade is here interspaceally broken by paler whitish scales on the nervules. A sub-obsolete series of very minute nervular black dots. Fringes, stained with yellow at base. Secondaries, largely white; the ochreous portion distinctly limited and confined to the middle of the wing on external margin. A transverse white line, only visible where it crosses this darker portion of the wing, arcuate, and lined inwardly with a dark coincident linear shade. Fringes, whitish, stained with yellowish at base and medially.

Beneath, both wings are whitish, faintly shaded with pale ochreous-brownish. The transverse exterior line of the primaries alone visible, very distinct and brownish. However, as on upper surface, it is in reality white, the apparent dark brownish line corresponding to the coincident dark shade line of the upper surface, since immediately beyond it there is a second very faint and narrow dark line, and the narrow space between the two is whitish, and thus is plainly analogous to the white exterior line of the upper surface with its dark margins. Disc of the primaries faintly shaded with brownish. Secondaries, very pale, resembling primaries. A single, irregular, brownish line, discontinued inferiorly, and seemingly running at variance with the short, white line of the upper surface. Fringes on both wings, yellowish.

Expanse, 0.65 inch. *Length of body*, 0.25 inch.

Habitat.—Atlantic District. (Penna !)

Differs from Lipocosma sicalis, (Walk.,) *Led.*, by the less prominently angulated exterior lines of the upper surface of the wings, by the more ochreous color, and by the absence of the median, sub-discal, black dots and discolorations.

EXPLANATION OF PLATES 1 AND 2.

Fig. 1, ♂ Psephopaectes simulatilis.
2, ♀ Adelocephala quadrilineata.
3, ♀ Adelocephala bicolor.
4, ♀ Adelocephala bicolor, (reverse.)
5, ♀ Pericallia kentaria.
6, ♀ Pericallia kentaria, (reverse.)
7, ♀ Adelocephala grandis.
8, ♂ Asopia unimacula.
9, ♀ Asopia anthoecioides.
10, ♂ Botys generosa.
11, ♂ Botys signatalis.
12, ♂ Botys laticlavia.
13, ♂ Botys cinerosa.
14, ♂ Botys haruspica.
15, ♂ Botys gracilis.
16, ♂ Botys diffissa.
17, ♀ Botys plectilis.
18, ♀ Botys coloradensis.
19, ♀ Botys adipaloides.
20, ♀ Botys citrina.
21, ♀ Botys marculenta.
22, ♀ Lipocosma albolineata.
23, ♂ Botys ventralis.
24, ♂ Botys insularis.
25, ♂ Botys posticata.

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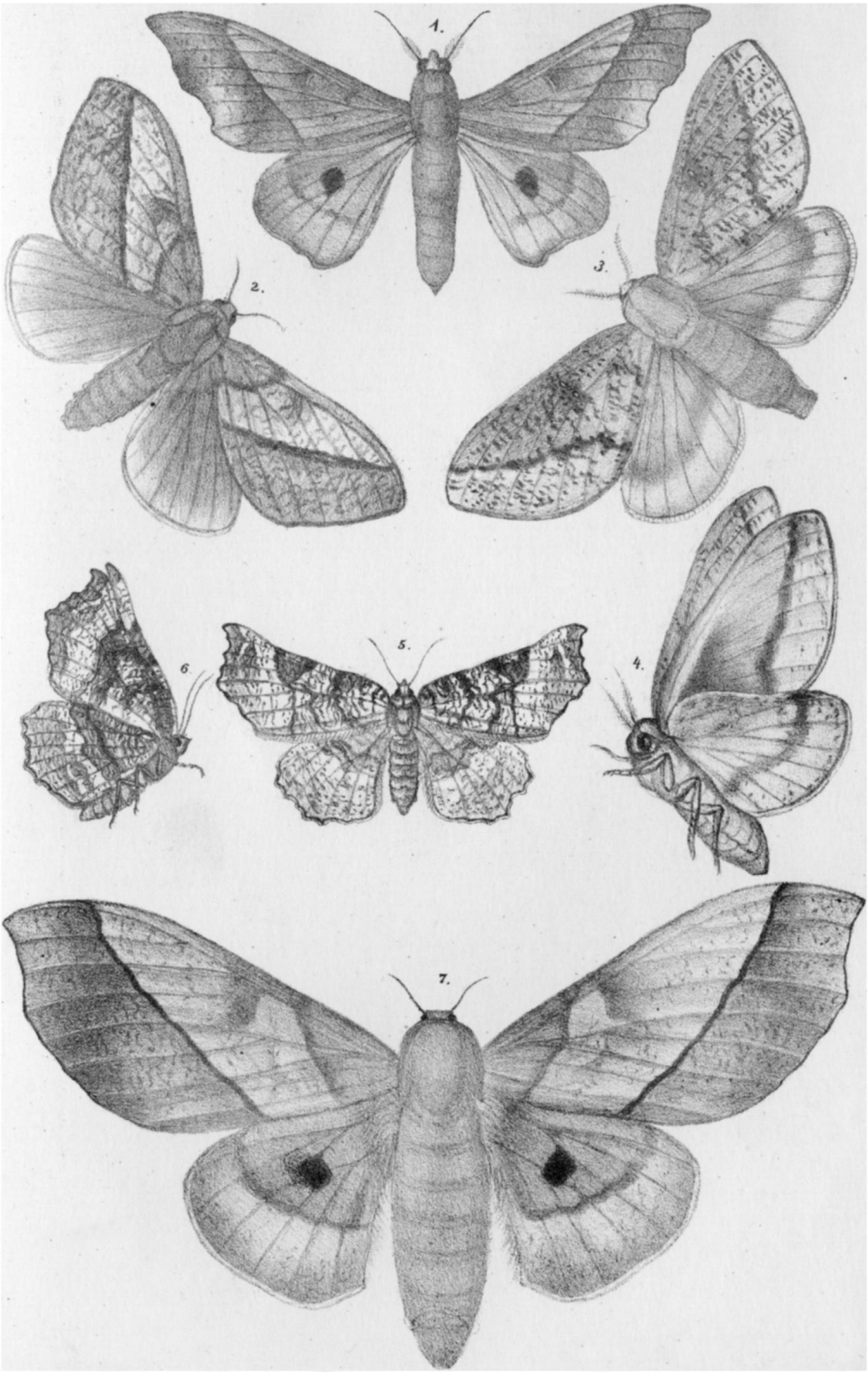
ERRATA et CORRIGENDA.

Page 5, line 33, *for* particular *read* particularly.
8, line 7, *for* so speak *read* so to speak.
8, line 13, *dele* comma *after* to.
13, line 28, *for* syrangaria *read* syringaria.
14, line 18, *for* Authros *read* Authors.
16, line 1, *insert a* semicolon *after* downwards.
26, line 15, *for* fluently *read* faintly.
26, line 21, *for* anterior *read* posterior.
27, line 13, *for* interal *read* internal.
50, line 19, *for* 171 *read* 179, 1.
50, line 21, *for* 671 *read* 674.
54, line 24 *for* Sel. *read* Serv.
63, line 23, *for* twelve pectoral *read* twelve abdominal.
64, line 3, **cœruleus** should be under heading *A* instead of *B.*
67, line 6, *for* 268 *read* 298.
69, line 3, *for* venter *read* vertex.
69, line 41, for *procera* read *poecila.*
71, to line 25 add the following references:—
Klug, Berl. Mag. vi, 300, 26. Lepel., Mon. Tenth. 48, 136.
73, line 1, *for* 249 *read* 240.
73, line 34, for *Pteroma* read *Pteronus.*
76, line 15, *for* theentire torsi *read* the entire tarsi.
78, line 20, for *atripes* read *albipes.*
193, line 4, *for* Page 31 *read* Page 84.
204, line 3, *for* 0.22—.26 inch *read* 0.11—.13 inch.
224, lines 6 and 27, *for* Am. *read* Ann.
225, line 1, *for* piliform *read* filiform.
246, line 32, for *linutaris* read *limitaris.*
256, line 6, *for* s *read* is.
266, line 41, *for* 18 *read* ix.
286, line 7, *for* Plate IV *read* Plate V.
288, line 37, *for* 186 , *read* 1862.
325. line 23, *after* dark *insert* blue.
340, line 11, *for* clean *read* clear.
345, line 1, *for* lroea *read* lorea.
377, line 26, for *Lewisii* read *Lecontei.*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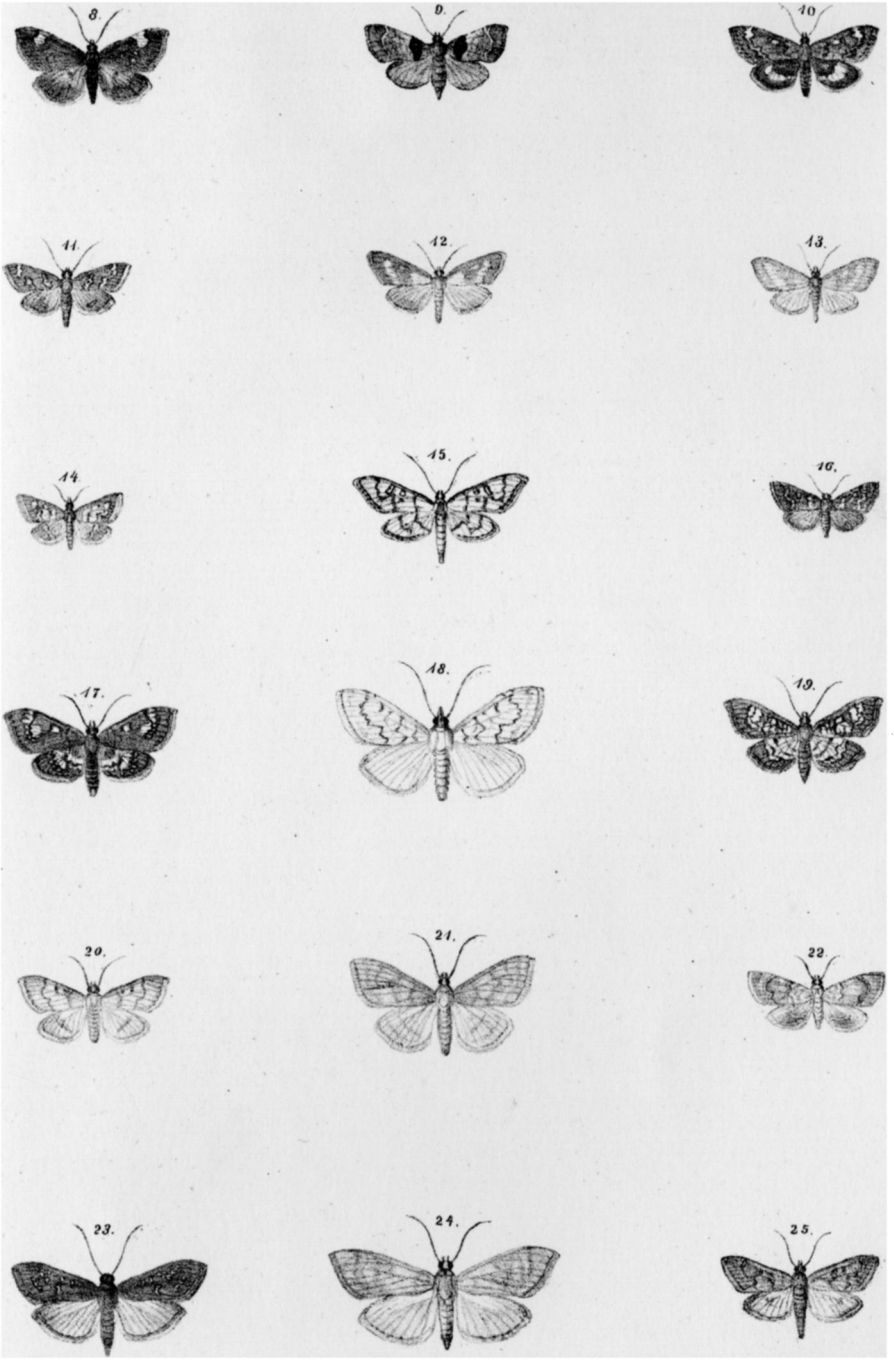
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